RESEARCH

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INTERVIEW

Meet Dr Chris Roche

We Life®

NEWSLETTER – ISSUE 2, 2020

Heart Research Australia

COVID-19 and Cardiovascular Disease

Heart Research Australia Board member, Prof Ravi Bhindi leads a nationwide research study into the link between Cardiovascular Disease and COVID-19

Giving **heart** to the future.

Research is the key

Hello – I hope this newsletter finds you well and that you are managing to keep positive with this ongoing COVID-19 situation.

As the world scrambles for a vaccine, with thousands of the best minds in the world working on it and billions of dollars invested – it really does highlight the essential role researchers play in helping us to live and live well.

This is why, at Heart Research Australia, we focus on funding first-stage research which doesn't attract government funding. We want our most brilliant medical minds to be able to act on their hypothesis and ideas and turn them into realities – so they can constantly improve the medical outcomes for all of us and our families.

In this newsletter you can read about the latest research into the link between cardiovascular disease and COVID-19. Led by Professor Ravi Bhindi, Board member of Heart Research Australia and Head of Cardiology at Royal North Shore Hospital and Dr Kunwar Bhatia, this research looks to get a better understanding of the cardiovascular complications in patients admitted to hospital with COVID-19. We also have an in-depth interview with one of our PhD Scholarship students - Dr Chris Roche, who is part of the research team looking at bioprinting mini hearts.

Finally, you can also read about the heartening and creative ways our community are still managing to raise funds for us in these hard times. We are so grateful! Thank you everyone for your continued support and I hope you enjoy reading your newsletter.

Warm Regards,

Nicci Dent - CEO, Heart Research Australia

Meet the team

Wayne, our Office and Finance Manager

We'd like to introduce you to a staff member who holds a very special place in our office – our one and only man – Wayne!

While his official title is Finance and Office Manager – he is actually our all-round guru. Wayne's typical day could be anything from preparation of Board Papers, to assisting with IT, to ensuring that a light bulb is replaced. While outside work he is a dedicated family man and an avid cyclist.

"I really fell into the role at HROz. After working in the professional services sector for over 25 years I was looking for a change. I did not have plans to work in the Not-for-Profit sector, but 4 years later I have never had a better role. As well as assisting in raising funds for Heart Research and feeling that you are making a difference, I am also part of a great team which includes our dedicated researchers. It is the only organisation I have ever worked in where all staff place the organisation's needs before themselves".

But like many of us, 3 years into his role he was to be personally touched by heart disease, when his beloved dad had bypass surgery. Wayne says, "Dad had some risk factors for heart disease but regular check-ups from his GP did not indicate any problems".

Wayne and his dad Laurie

"Obviously, my passion and appreciation for the work we do every day has greatly increased" Wayne says, " I did not have any concerns about my heart when I commenced in this role, but since becoming informed of heart disease through our research and then my father's illness, I am now proactive. I have been to my GP to have my health checked and have volunteered for any research project that I may be able to assist on".

"I love the satisfaction of working for a great cause but what most inspires me is the dedication of our researchers and seeing their innovative ideas becoming a reality – which ultimately saves the lives of people like my dad."

"HROz is a rewarding and inspirational place to work, and I thank you all for your continued support."

RESEARCH

COVID-19 and Cardiovascular Disease

Unfortunately, preliminary findings seem to indicate that those with cardiovascular disease are more likely to be severely affected by COVID-19 and are more likely to die from the disease. While 1 in 6 Australians have cardiovascular disease, over 2/3rds of those patients hospitalised with COVID-19 have a pre-existing heart condition and 1 in 2 have high blood pressure. With over 27 million people affected by COVID-19 worldwide and close to 900K deaths - urgent data is required to better understand the effects of pre-existing cardiovascular disease.

In an attempt to explore these links, Professor Ravi Bhindi, who is Head of Cardiology at Royal North Shore Hospital, Professor of Medicine at the Sydney University and a Board member of Heart Research Australia, along with his colleague Dr Kunwar Bhatia, are leading an expert team of cardiologists and researchers from across the country to form the Australian Cardiovascular COVID-19 Registry (AUS-COVID).

AUS-COVID will be the first national registry of its type in the world. Data from COVID patients is being gathered from 20 large tertiary hospitals around Australia. By researching the effects of the virus on the cardiovascular system, it will allow clinicians and health services to be better prepared to manage these patients - improving outcomes and lower complications for COVID-19 patients with cardiovascular disease.

The study will look at fundamental questions like:

- Will COVID-19 cause Heart Disease?
- Are patients with pre-existing cardiovascular disease more susceptible to more severe outcomes than patients without?

Professor Ravi Bhindi

- Which type of Heart Disease may predispose a patient to contracting COVID-19 or result in more severe complications?
- What, if any, affect does heart medication have on patient outcomes?
- If you do end up getting COVID-19 as a heart patient, what does your journey look like compared to patients without heart disease?

While we eagerly await the findings – you can hear more about this research directly from Prof Bhindi and Dr Kunwar by visiting our website at **www.heartresearch.com.au/tea-with-the-experts-covid-19/** to listen to the exclusive webinar they held for Heart Research Australia supporters on Thursday 17th September.

In future if you would like to get advance notice of these live webinars and other research updates you can join our Heart Health Club at: **www.heartresearch.com.au/heart-health-club/**

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Contact Us:

Heart Research Australia
PO Box 543
St Leonards, NSW 1590

02 9436 0056
heartresearch.com.au

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@heartresearchaustralia

Meet your Researchers - Dr Chris Roche

We'd like to introduce you to Dr Chris Roche who is completing a PhD scholarship programme funded by Heart Research Australia, with your donations. Dr Roche is working with Dr Carmine Gentile and his team on the 3D bioprinted heart patches project. This project aims to regenerate parts of the heart that have died following a severe heart attack and to help heart failure patients by using their own stem cells to produce heart patches made from 'bio-ink' via a bioprinter.

Dr Roche was especially chosen for his skills and insights as a cardiac surgical trainee, to ensure that the heart patches are being developed with the best protocols for successful implantation.

What and who inspired you get into medicine?

I'm a great believer that when we face hardships in life it can point the way to better things in the future and open up opportunities we hadn't previously considered.

The way that good things can come from a seemingly bad event is actually what led me to medicine.

I had just completed my PhD in English Literature and was on holiday in Thailand, when I accidentally accelerated my hired moped into a plate glass window. I ended up in surgery in Koh Samui and I was so inspired by the surgeons there, that I thought, I could really see myself doing this. Like these surgeons, I was inspired to make a difference in people's lives.

Having decided I wanted to do surgery, I took a job as a health care assistant/auxiliary nurse as I studied up on my science, in order to gain entry into a graduate medicine degree. In addition to working, I studied science about 5 hours a day for 5 months. Again, while doing this job, life presented me with another wonderful gift, when I met my future wife, who is a nurse.

As my wife was offered a job in the UK, I ended up studying medicine there. While on a hospital placement I was mentored by an inspirational cardiothoracic surgeon - which led me to specialise in this field.

I was always interested in how to regenerate the heart from a surgical point of view and the biochemistry around cell culture and the generation of stem cells. So, one day when I opened my old Alumni Magazine from Sydney Uni and saw Dr Carmine Gentile was looking for a PhD student to work on the bioprinting project – I was hooked. The process of bioprinting heart patches really captured my imagination, as it's on the leading edge of technology with a real potential to change lives and it really completed a perfect PhD project for me.

So, I have put my surgery degree on hold to come back to Australia with my family to be a part of this amazing research – and I'm passionate about it. It's so inspiring to work with a team that is really on the cutting edge of science.

How does your current research improve outcomes for heart patients and advance cures for Heart Disease?

Essentially, we are attempting to regenerate the parts of the heart muscle which have died following a heart attack. Currently there is no good way to regenerate a damaged heart muscle, so the outcome is ultimately heart failure and death. For patients with end-stage heart failure, the current treatment is a heart transplant, but availability of donor hearts is limited and comes with a significant number of risks, including organ rejection. The patient is also going to be on anti-rejection drugs for the rest of their life.

This is why this research is so exciting. If we can use a patient's own stem cells to create heart patches, we can hopefully eliminate the need for donor hearts and the associated side effects of organ rejection and on-going medication.

Also, as our research moves forward, we are finding other applications for the heart patches. These include the ability to study heart attacks in test tubes. By mimicking the conditions that the human heart is exposed to during a heart attack, researchers will be better able to foresee the effects of medications on a patient's own 3D bioprinted heart tissue and to test new and existing drugs on a patient's heart tissue.

What does the future hold for you?

I am excited about what the future holds for me although I'm not sure which path will open up. I am keen on the clinical surgical side where I can utilise my research skills as well as my surgical skills. The ideal would be to be part of the team which manages to successfully apply these bioprinted heart patches to a damaged heart in surgery.

Regardless of where I end up, I want to be able to look back on my life and say I made a difference. This year I actually set up a free mentoring service called **www.underdogmentoring.com/**. The idea is to pass on the mentoring support, which I've been lucky enough to receive over the years, to those who may not immediately have access to these sorts of connections or professional advice. Because I know I wouldn't have got to this point, or be able to do what I do today, without the help of a team of people - mentors, colleagues and most importantly donors. I really am truly grateful for the generous support from Heart Research Australia donors – so thank you so much.

To read more about Chris' research see the team's recent articles:
https://academic.oup.com/ejcts/article/58/3/500/5835731
and
https://academic.oup.com/ejcts/advance-article/doi/10.1093/ejcts/ezaa205/5893647

The ongoing contribution of research - Prof Martin Kluckow

It never fails to pull at our heart strings – images of premature babies struggling for life and covered in tubes. While advances in medical science means we can save more of these precious babies, the instability associated with their immaturity can lead to significant complications – bleeding, brain injury, long term handicap and the immaturity of the heart and blood vessels.

For over 23 years, Heart Research Australia, along with a generous benefactor, has donated $1.3 million to research to help our most vulnerable and their families. This research, led by Professor Martin Kluckow at the Newborn Care Centre at Royal North Shore Hospital, collaborates with several other hospitals around Australia to develop and conduct new clinical studies in their quest to understand the problems with heart function in premature and sick infants.

With the help of this funding the researchers have completed 25 separate projects and employed a research nurse for over 17 years. They have published more than 70 articles with a significant national and international impact.

Each project helps to provide essential insights into the physiology of underlying heart complications and their

ongoing impact on the patient's life - enabling targeted treatment and lifelong management. To read more on Prof Kluckow's latest research go to:
www.heartresearch.com.au/our-researchers/kluckow/

COVID-19 won't stop us connecting

Here are some lovely stories about our community raising money for us, even in lockdown. And of course, we couldn't go past featuring the latest addition to the Heart Research Australia family – Jenny's King Cavalier Spaniel puppy, Bailey - posing with an article we feature in!

Brooke Williams

Brooke Williams has a goal in life, to change the image of a cardiac patient from that of an overweight person who doesn't look after themselves, to the reality - which is heart disease in its many forms can affect anyone at any time.

Brooke was one of these people – a carefree 28-year-old fitness instructor and PE teacher, with a passion for highly competitive running. She was training for an elite 10,000 metre national running championship – when she collapsed.

After a series of tests Brooke found out she suffered from hypertrophic cardiomyopathy (HCM), a thickening of the heart walls. The walls between the chambers were so thick blood could not pass through. This is a condition that affects approximately 1 in 500 people however there are many patients still undiagnosed.

"It really turned my life upside down. All my life and social circle was centered around competitive sport. I had to change the way I saw myself and had to approach things in a completely different way. Initially, I really struggled to see another future for myself. The stress, uncertainty and lack of confidence in your own body, can be paralysing. Without the confidence that research into HCM and exercise gave me, I would be in a dark place not knowing what the outcome would be for me."

"If it wasn't for research... I would be in a dark place not knowing what the outcome would be for me."

"I am now inspired to get the message out there about Heart Disease. Get your heart checked every 2 –3 years. Know the signs and be informed and proactive. Because I think it's better to know, then you are able to manage your condition and prevent catastrophic events from happening".

Brooke came to our attention when, in the middle of Victoria's first lockdown period, she organised a Virtual Fun Run to raise money for Heart Research Australia. Not only did she want to fund research, but also to raise awareness of heart disease and to help get Australians moving through the first wave of COVID-19. She created a virtual event encouraging people to run (or walk) 5km in May and to donate $20 or more to Heart Research Australia. Participants uploaded their donation confirmation and data of their run to the Facebook event page. With the help of her mother-in-law she also hand made some beautiful medals for the successful participants.

Brooke says her experience has taught her to focus on what really matters in life - to be grateful for everything, especially for what her body can do. Brooke and her husband are soon to welcome their first child – so we wish them all the best and we are so grateful for her fundraising efforts which raised $906 towards life-saving heart research.

Kiama Power Fundraiser

Despite all the restrictions COVID-19 threw at them the Kiama Power Australian Football Club community managed to raise an incredible $728 in honour of Darren Williams. The community didn't let the "no spectator rule" stop them from fundraising – moving their donations online. We are so grateful for their support and thank them for allowing us share in honouring Darren's legacy. If you would like to donate to Darren's Research Fund for Professor Gemma Figtree's BioHeart project or to read more about Darren's story visit **www.heartresearch.com.au/darrenwilliamsresearchfund/**

Darren Williams with his son Michael and Kiama Power Captain Ricky

Women and Heart disease - New Idea article

Recently our CEO Nicci Dent and Board Director, Dr Rebecca Kozor contributed to an article in New Idea which talked about strategies, checks and lifestyle changes for women in order to keep their heart healthy.

Here's the picture of Bailey, our most recent Heart Research family member and the article, but if you'd like to learn more about women and heart disease visit **www.heartresearch.com.au/h.../women-and-heart-disease/**

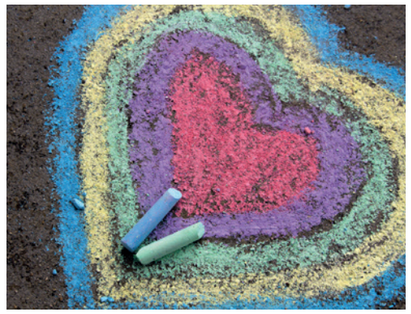
Have you joined our Heart Health Club yet?

Get access to latest updates from our researchers, specialist content, heart healthy recipes plus free access to live webinars and more! Go to: **www.heartresearch.com.au/heart-health-club/**

Feel the need to connect?

As part of the Heart Health Club, you can also access our private Facebook community group. We have found many of our supporters like to connect online with others who are in a similar situation or for help on maintaining a healthy heart.

Whether you have had direct personal experience of heart disease, or are caring for someone with heart disease or if you just want to be proactive about your heart health – this community Facebook page gives you a forum to share your stories, ask questions, or get advice or tips on how to maintain your heart health, with other people on a similar journey.



It's a closed Facebook group which means you have to sign up to be a member. Please go to: **www.heartresearch.com.au/heart-health-club/**

Heart Research Australia

I have, *Will* you?

"It's hard to believe it's 25 years since I had my mitral heart valve operation at Royal North Shore Hospital and I'm still enjoying good health and still running!

Not only was I very happy with the result, I was also interested and impressed by the innovative research being undertaken by Heart Research Australia.

Advances in heart research made my successful heart surgery possible, so I decided to support Heart Research Australia through a regular donation. My wife and I also made the decision to include a gift in our Wills to Heart Research Australia.

It is wonderful to know that my legacy will help fund future advances and could save lives."

Peter Gentry

If you would like to make provision for Heart Research Australia in your Will please return the form below to Heart Research Australia, Reply Paid 543, St Leonards NSW 1590, or contact Diane van de Merwe on (02) 9436 0056 or diane@heartresearch.com.au

☐ Please send me more information about leaving a gift in my Will to Heart Research Australia

☐ I have already left a gift in my Will to Heart Research Australia

☐ I will update my Will to include Heart Research Australia

Title: _____ First Name: _____ Last Name: _____

Address: _____

Suburb: _____ State: _____ Postcode: _____

Email: _____ Phone: _____

Thank you so much! ***Your legacy, large or small, will have a positive impact on generations to come.***